

1. Which portion of the electromagnetic spectrum are we able to see?
2. What is meant by the terms *continuous spectrum*? *Line spectrum*?
3. What is believed to be the cause of the line spectrum for each element?
4. Rutherford's model was an improvement over Dalton/Thomson's model. Although it represented an improvement, it had some shortcomings (questions that it could not answer). Review these problems/questions (question 7 on WS-3).

Bohr's model was seen as an improvement over Rutherford's. What problems/questions was Bohr able to address (take care of)?

5. In order for an electron to move to a higher orbit, what must happen to it?
6. What happens when the electron returns to a lower orbit?
7. Which transitions (jumps) were responsible for the visible lines seen in the line spectrum of hydrogen? Which transition gave rise to the violet line? The red line?
8. People doubted Bohr's model at first as they thought he fudged a set of mathematical equations to 'fit' his model. The fact that he was able to make predictions using his model gave his model some credibility. Bohr predicted that a line spectrum would be visible in the infra-red region of the spectrum and was able to predict the exact frequencies of those lines. Which transitions, in his model, were responsible for the infra-red lines?
9. Which transitions were responsible for the UV lines that Bohr predicted?
10. What is the maximum number of electrons permitted in the first energy level? 2<sup>nd</sup>? 3<sup>rd</sup>? 4<sup>th</sup>? 5<sup>th</sup>?
11. Draw the Bohr atoms for Li, Na, K. What do they have in common?
12. Draw the Bohr atoms for O and S. What do they have in common?
13. Draw the Bohr atoms for Ne, Ar. What do they have in common?
14. Why was Bohr's model considered a failure?
15. Why is it that, although it is considered a failure, it is widely used in chemistry?